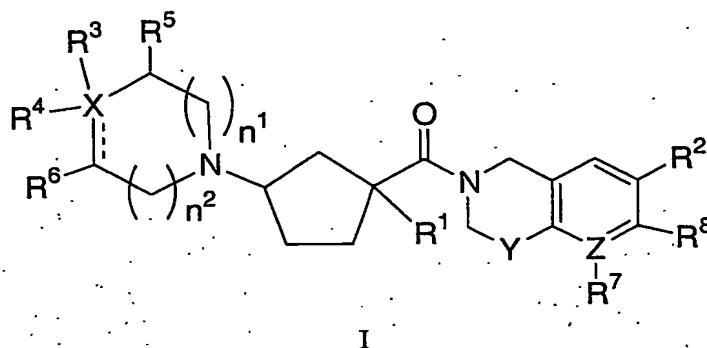


WHAT IS CLAIMED IS:

1. A compound represented by formula I:



or a pharmaceutically acceptable salt thereof, or an individual diastereomer thereof, wherein:

X is C, N, O or S;

Y is O, S, SO, SO₂, or NR⁹;

Z is C or N;

R¹ is hydrogen, -C₀₋₆alkyl-W-(C₁₋₆alkyl)-, -(C₀₋₆alkyl)-W-(C₀₋₆alkyl)-(C₃₋₇cycloalkyl)-(C₀₋₆alkyl), -(C₀₋₆alkyl)-W-phenyl, or -(C₀₋₆alkyl)-W-heterocycle, wherein the alkyl, phenyl, heterocycle and the cycloalkyl are optionally substituted with 1-7 independent halo, hydroxy, -O-C₁₋₃alkyl, trifluoromethyl, C₁₋₃alkyl, -O-C₁₋₃alkyl, -CO₂R¹⁰, -CN, -NR¹⁰R¹⁰, -NR¹⁰COR¹⁰, -NR¹⁰SO₂R¹¹, or -CONR¹⁰R¹⁰ substituents;

W is a single bond, -O-, -S-, -SO-, -SO₂-, -CO-, -CO₂-, -CONR¹⁰- or -NR⁹-;

R² is -halo, -C₀₋₆alkyl, C₀₋₆alkyl-W-C₁₋₆alkyl, C₀₋₆alkyl-W-C₃₋₇cycloalkyl, C₀₋₆alkyl-W-phenyl, or C₀₋₆alkyl-W-heterocycle, wherein the C₁₋₆alkyl, C₃₋₇cycloalkyl, phenyl and heterocycle optionally are independently substituted with 1-6 halo, trifluoromethyl, -CN, -C₁₋₆alkyl, or hydroxy substituents;

R³ is hydrogen, -(C₀₋₆alkyl)-phenyl, -(C₀₋₆alkyl)-heterocycle, -(C₀₋₆alkyl)-C₃₋₇cycloalkyl, -(C₀₋₆alkyl)-CO₂R¹⁰, -(C₀₋₆alkyl)-(alkene)-CO₂R¹⁰ (C₀₋₆alkyl)-SO₃H, -(C₀₋₆alkyl)-W-C₀₋₄alkyl, -(C₀₋₆alkyl)-CONR¹⁰-phenyl, or -(C₀₋₆alkyl)-CONR¹²-V-CO₂R¹⁰, and wherein R³ is nothing when X is O, and wherein C₀₋₆alkyl is optionally substituted with 1-5 independent halo, hydroxy, -C₀₋₆alkyl, -O-C₁₋₃alkyl, trifluoromethyl, or -C₀₋₂alkyl-phenyl substituents, and wherein the phenyl, heterocycle, cycloalkyl, and C₀₋₄alkyl is optionally substituted with 1-5 independent halo, trifluoromethyl, hydroxy, C₁₋₃alkyl, -O-C₁₋₃alkyl, -C₀₋₃-CO₂R¹⁰, -CN, -NR¹⁰R¹⁰, -CONR¹⁰R¹⁰, or -C₀₋₃-heterocycle substituents, and wherein the phenyl and heterocycle may be fused to another heterocycle, which itself optionally may be substituted with 1-2 independently hydroxy, halo, -CO₂R¹⁰,

or -C₁₋₃alkyl substituents, and where alkene is optionally substituted with 1-3 independently halo, trifluoromethyl, C₁₋₃alkyl, phenyl, or heterocycle substituents;

V is C₁₋₆alkyl or phenyl;

R¹² is hydrogen, C₁₋₄alkyl, or R¹² is joined via a 1-5 carbon tether to one of the carbons of V to form a ring;

R⁴ is nothing when X is either O, or N or when a double bond joins the carbons to which R³ and R⁶ are attached, or R⁴ is hydroxy, C₁₋₆alkyl, C₁₋₆alkyl-hydroxy, -O-C₁₋₃alkyl, -CO₂R¹⁰, -CONR¹⁰R¹⁰, or -CN;

or R³ and R⁴ are joined together to form a 1H-indenyl, 2,3-dihydro-1H-indenyl, 2,3-dihydro-benzofuranyl, 1,3-dihydro-isobenzofuranyl, 2,3-dihydro-benzothiofuranyl, 1,3-dihydro-isobenzothiofuranyl, 6H-cyclopenta[d]isoxazol-3-yl, cyclopentanyl, or cyclohexanyl ring, wherein the ring formed optionally is substituted with 1-5 independently halo, trifluoromethyl, hydroxy, C₁₋₃alkyl, -O-C₁₋₃alkyl, -C₀₋₃-CO₂R¹⁰, -CN, -NR¹⁰R¹⁰, -CONR¹⁰R¹⁰, or -C₀₋₃-heterocyclyl substituents;

or R³ and R⁵ or R⁴ and R⁶ are joined together to form a phenyl or heterocyclyl ring, wherein the ring is optionally substituted with 1-7 independent halo, trifluoromethyl, hydroxy, C₁₋₃alkyl, -O-C₁₋₃alkyl, -CO₂R¹⁰, -CN, -NR¹⁰R¹⁰, or -CONR¹⁰R¹⁰ substituents;

R⁵ and R⁶ are independently hydrogen, hydroxy, C₁₋₆alkyl, C₁₋₆alkyl-CO₂R¹⁰, C₁₋₆alkyl-hydroxy, -O-C₁₋₃alkyl, or halo, or =O, when R⁵ or R⁶ is connected to the ring via a double bond;

when Z = C, R⁷ is hydrogen, hydroxy, halo, C₁₋₆alkyl optionally substituted with 1-6 fluoro, -O-C₁₋₆alkyl optionally substituted with 1-6 fluoro, -NR¹⁰R¹⁰, -NR¹⁰CO₂R¹¹, -NR¹⁰CONR¹⁰R¹⁰, -NR¹⁰-SO₂-NR¹⁰R¹⁰, -NR¹⁰-SO₂-R¹¹, heterocycle, -CN, -CONR¹⁰R¹⁰, -CO₂R¹⁰, -NO₂, -S-R¹⁰, -SO-R¹¹, -SO₂-R¹¹, or -SO₂-NR¹¹R¹¹;

when Z = N, R⁷ is nothing or oxide (resulting in a pyridine N-oxide);

R⁸ is hydrogen, C₁₋₆alkyl, trifluoromethyl, trifluoromethoxy, chloro, fluoro, bromo, or phenyl;

R⁹ is SO₂R¹¹, COR¹⁰, CONHR¹⁰, CO₂R¹¹, or SO₂NHR¹⁰;

R¹⁰ is hydrogen, -C₁₋₆alkyl, benzyl, phenyl, or -C₀₋₆alkyl-C₃₋₆cycloalkyl, optionally substituted with 1-3 independent halo, C₁₋₃alkyl, C₁₋₃alkoxy or trifluoromethyl substituents;

R¹¹ is C₁₋₆alkyl, -C₀₋₆alkyl-C₃₋₆cycloalkyl, benzyl or phenyl, optionally substituted with 1-3 independent halo, C₁₋₃alkyl, C₁₋₃alkoxy or trifluoromethyl substituents;

n¹ and n² are independently 0, 1 or 2, wherein the sum of n¹ and n² is 0, 1, 2, or 3; and the dashed line represents a single or a double bond.

2. The compound of Claim 1, wherein X is C.

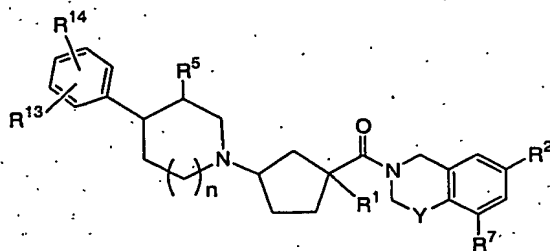
3. The compound of Claim 1, wherein X is O.

4. The compound of Claim 1, wherein X is N.

5. The compound of Claim 1, wherein

R^3 and R^4 are joined together to form a 1H-indenyl, 2,3-dihydro-1H-indenyl, 2,3-dihydro-benzofuranyl, 1,3-dihydro-isobenzofuranyl, 2,3-dihydro-benzothiofuranyl, 1,3-dihydro-isobenzothiofuranyl, 6H-cyclopenta[d]isoxazol-3-yl, cyclopentanyl, or cyclohexanyl ring, wherein the ring formed optionally is substituted with 1-5 independently halo, trifluoromethyl, hydroxy, C_{1-3} alkyl, -O- C_{1-3} alkyl, - C_{0-3} -CO $2R^{10}$, -CN, -NR $^{10}R^{10}$, -CONR $^{10}R^{10}$, or - C_{0-3} -heterocyclyl substituents; or R^3 and R^5 or R^4 and R^6 are joined together to form a phenyl or heterocyclyl ring, wherein the ring is optionally substituted with 1-7 independent halo, trifluoromethyl, hydroxy, C_{1-3} alkyl, -O- C_{1-3} alkyl, -CO $2R^{10}$, -CN, -NR $^{10}R^{10}$, or -CONR $^{10}R^{10}$ substituents.

6. The compound of Claim 1, represented by formula Ia:



(Ia)

or pharmaceutically acceptable salts and individual diastereomers thereof, wherein R^1 ,

R^2 , R^5 , R^7 , and Y are defined as in Claim 1;

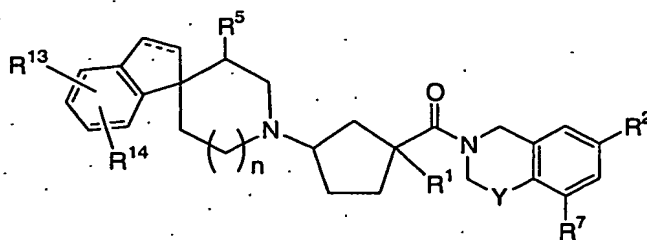
wherein R^{13} and R^{14} are independently hydrogen, halo, trifluoromethyl, hydroxy, C_{1-3} alkyl, -O- C_{1-3} alkyl, - C_{0-3} -CO $2H$, - C_{0-3} -CO $2C_{1-3}$ alkyl, -CN, or - C_{0-3} -heterocycle;

or R^{13} and R^{14} are joined together to form a heterocycle which is fused to the phenyl ring, and which itself may be unsubstituted or substituted with 1-2 independent hydroxy, halo, -CO $2R^{10}$, or -

C_{1-3} alkyl substituents; and

n is 0, 1, or 2.

7. The compound of Claim 1, represented by formula Ib:



(Ib)

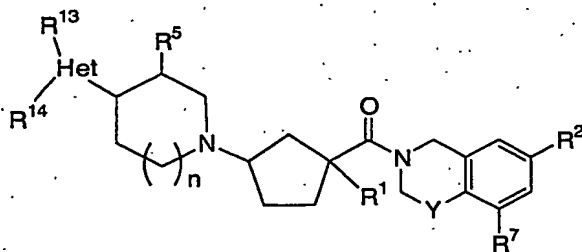
or pharmaceutically acceptable salts and individual diastereomers thereof, wherein R¹, R², R⁵, R⁷, and Y are defined as in Claim 1;

R¹³ and R¹⁴ are independently hydrogen, halo, trifluoromethyl, hydroxy, -C₁₋₃alkyl, -O-C₁₋₃alkyl, -C₀₋₃-CO₂H, -C₀₋₃-CO₂C₁₋₃alkyl, -CN, or -C₀₋₃-heterocycle;

or R¹³ and R¹⁴ are joined together to form a heterocycle which is fused to the phenyl ring, and which itself may be unsubstituted or substituted with 1-2 independent hydroxy, halo, -CO₂R¹⁰, or -C₁₋₃alkyl substituents; and

n is 0, 1, or 2.

8. The compound of Claim 1, represented by formula Ic:



(Ic)

or pharmaceutically acceptable salts and individual diastereomers thereof, wherein R¹, R², R⁵, R⁷, and Y are defined as in Claim 1;

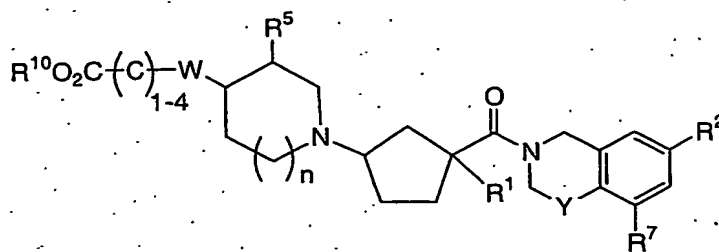
wherein R¹³ and R¹⁴ are independently hydrogen, halo, trifluoromethyl, hydroxy, -C₁₋₃alkyl, -O-C₁₋₃alkyl, -C₀₋₃-CO₂H, -C₀₋₃-CO₂C₁₋₃alkyl, -CN, or -C₀₋₃-heterocycle;

or R¹³ and R¹⁴ are joined together to form a heterocycle which is fused to the phenyl ring, and which itself may be unsubstituted or substituted with 1-2 independent hydroxy, halo, -CO₂R¹⁰, or -C₁₋₃alkyl substituents;

n is 0, 1, or 2; and

Het is a heterocycle.

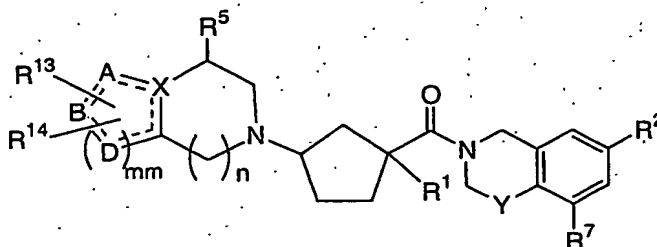
9. The compound of Claim 1, represented by formula Id:



(Id)

- 5 or pharmaceutically acceptable salts and individual diastereomers thereof, wherein R^1 , R^2 , R^5 , R^7 , R^{10} , Y, and W are as defined in Claim 1;
 n is 0, 1, or 2; and
 C_{1-4} carbon chain is optionally substituted with 1-4 independent halo, hydroxy, $-C_0-$ alkyl, $-O-C_{1-3}$ alkyl, trifluoromethyl, or $-C_{0-2}$ alkyl-phenyl substituents; or the C_{1-4} carbon chain is part of
 10 a C_{3-7} cycloalkyl ring.

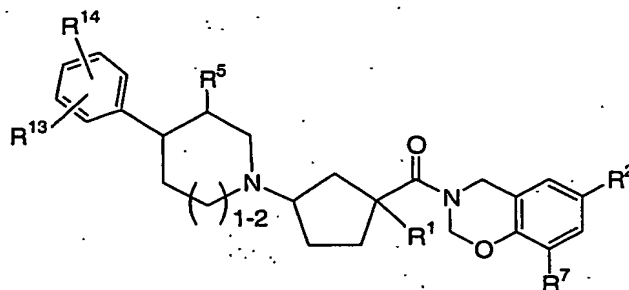
10. The compound of Claim 1, represented by formula Ie:



(Ie)

- 15 or pharmaceutically acceptable salts and individual diastereomers thereof, wherein R^1 , R^2 , R^5 , R^7 , R^{13} , R^{14} , X, and Y are as defined in Claim 1;
 n is 0, 1, or 2;
 the dotted lines represent an optional bond;
 mm is 1 or 2, and
 20 A, B, and D are each independently C, N, O, or S; or A, B, and D, in combination with $mm = 2$, form a phenyl ring; or in combination form a heterocycle when at least one of X, A, B, D is N, O, or S.

11. The compound of Claim 1, represented by formula If:



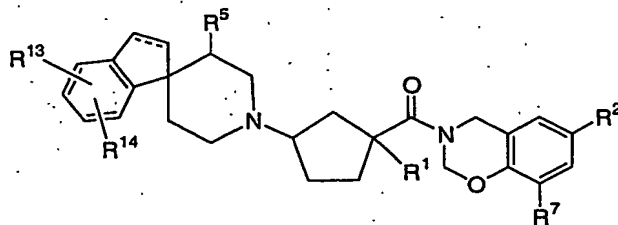
(If)

or pharmaceutically acceptable salts and individual diastereomers thereof, wherein R^1 , R^2 , R^5 , R^7 , R^{13} , and R^{14} , are as defined for Claim 1;

or wherein R^{13} and R^{14} are joined together to form a heterocycle fused to the phenyl ring;

and wherein the heterocycle is itself optionally substituted with 1-2 independent hydroxy, halo, $-CO_2R^{10}$, or $-C_{1-3}alkyl$ substituents.

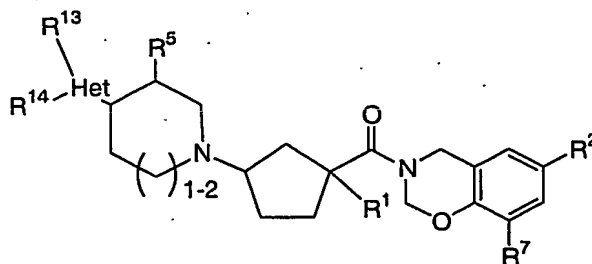
12. The compound of Claim 1, represented by formula Ig:



(Ig)

or pharmaceutically acceptable salts and individual diastereomers thereof, wherein the dashed line represents an optional bond and R^1 , R^2 , R^5 , R^7 , R^{13} , and R^{14} are as defined in Claim 1.

13. The compound of Claim 1, represented by formula Ih:



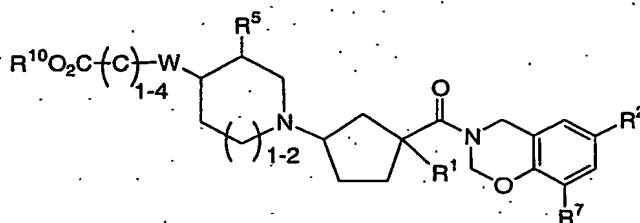
(Ih)

or pharmaceutically acceptable salts and individual diastereomers thereof, wherein R^1 , R^2 , R^5 , R^7 , R^{13} , and R^{14} are as defined in Claim 1; and

Het is a heterocycle.

5

14. The compound of Claim 1, represented by formula Ii:



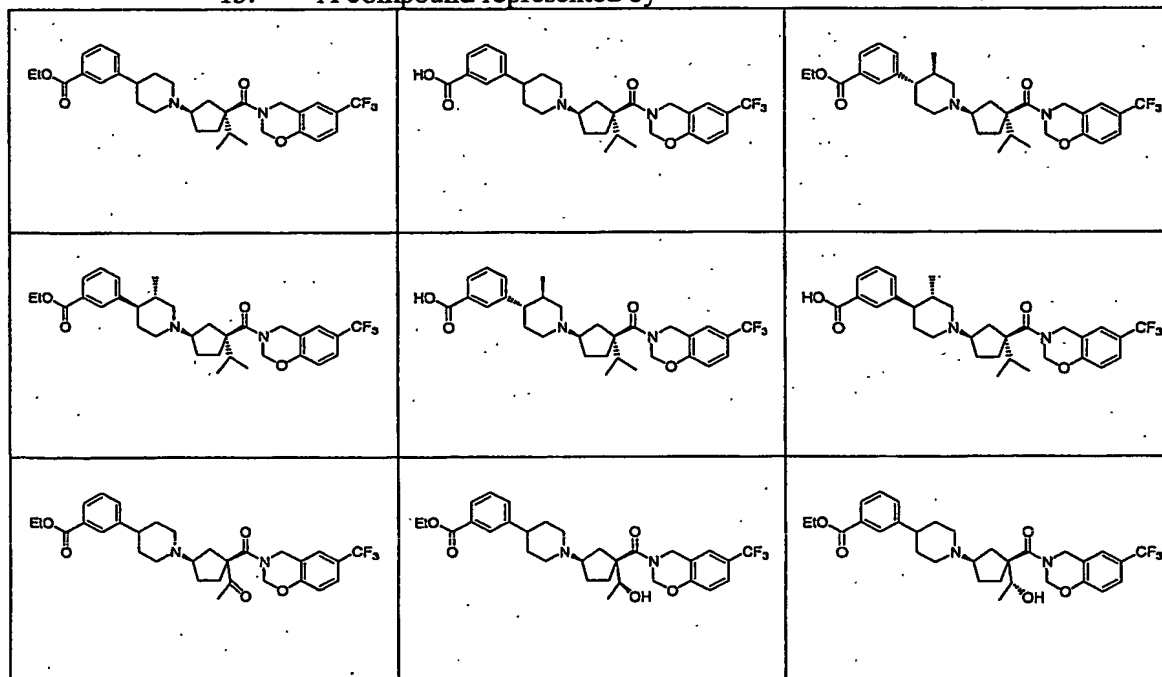
(Ii)

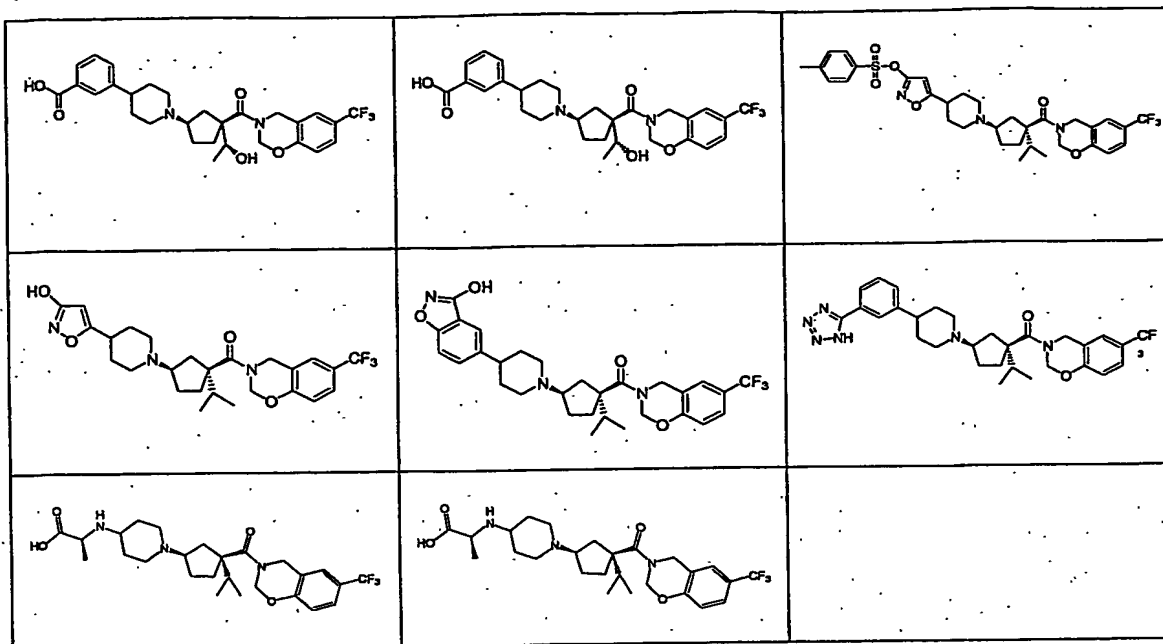
or pharmaceutically acceptable salts and individual diastereomers thereof, wherein R^1 , R^2 , R^5 , R^7 , R^{10} , and W are defined as in Claim 1; and

10

wherein the C_{1-4} carbon chain is optionally substituted with 1-4 independent halo, hydroxy, $-C_{0-6}$ alkyl, $-O-C_{1-3}$ alkyl, trifluoromethyl, or $-C_{0-2}$ alkyl-phenyl substituents.

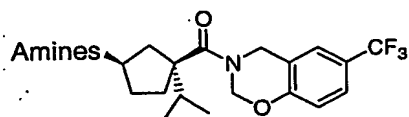
15. A compound represented by



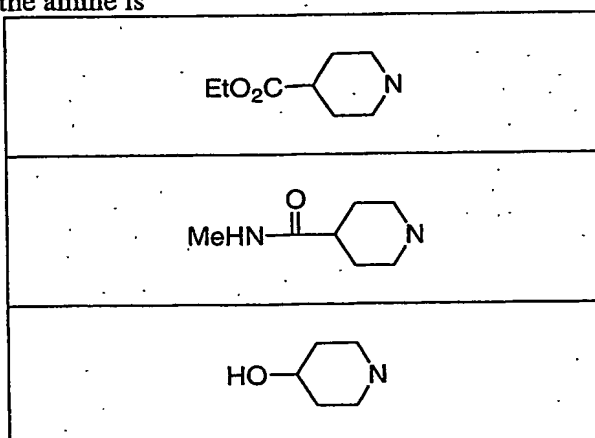


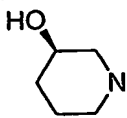
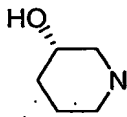
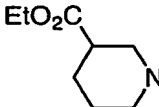
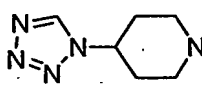
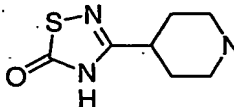
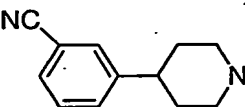
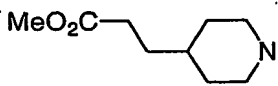
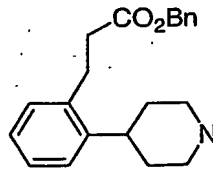
or a pharmaceutically acceptable salt or individual diastereomer thereof.

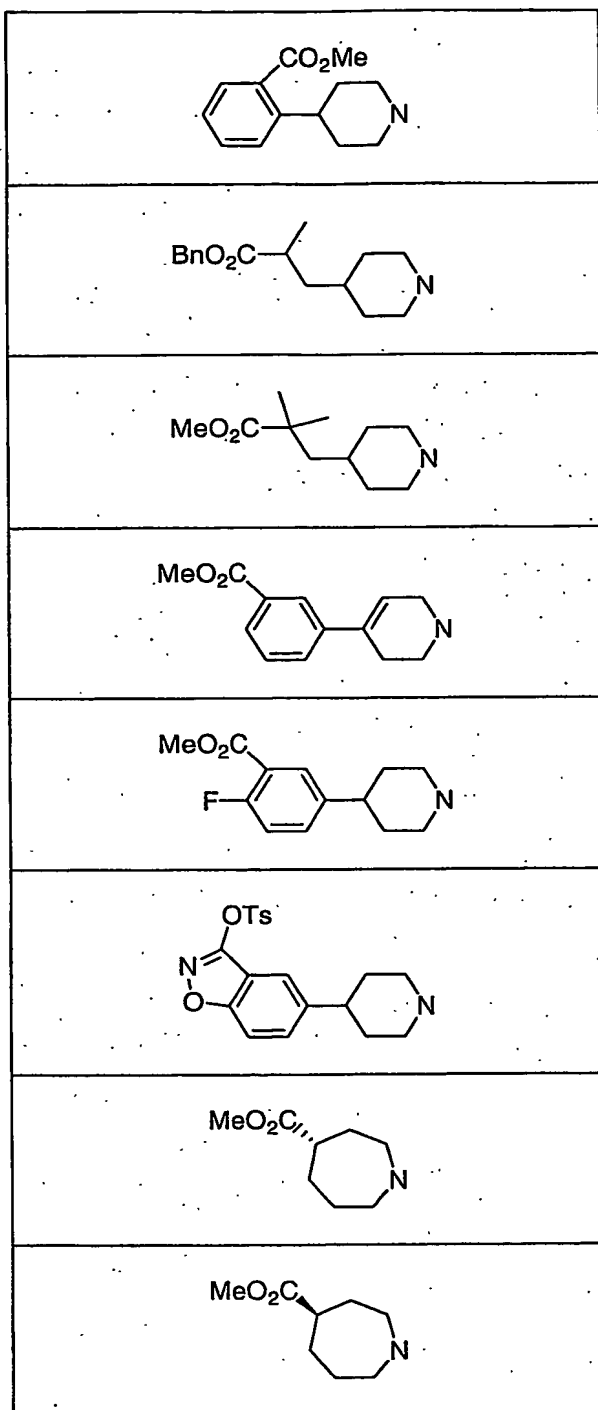
16. A compound represented by

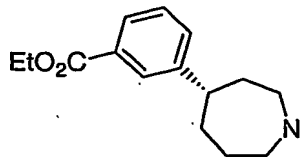
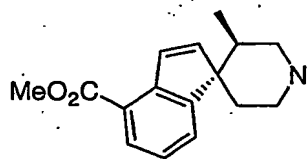
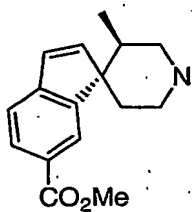
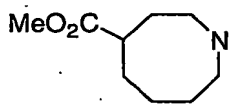
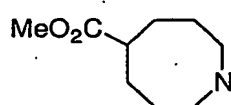
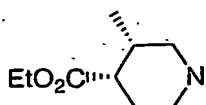
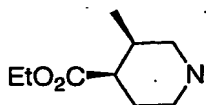
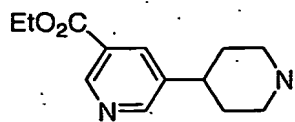


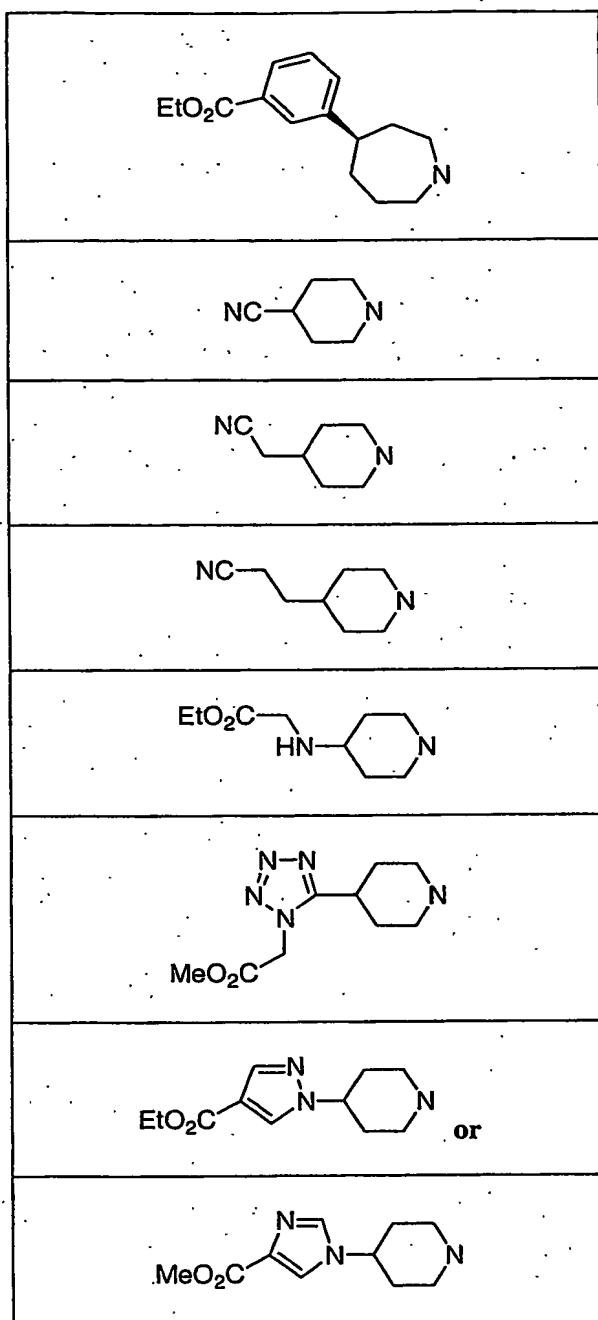
5 wherein the amine is



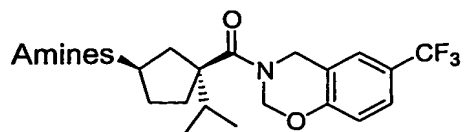






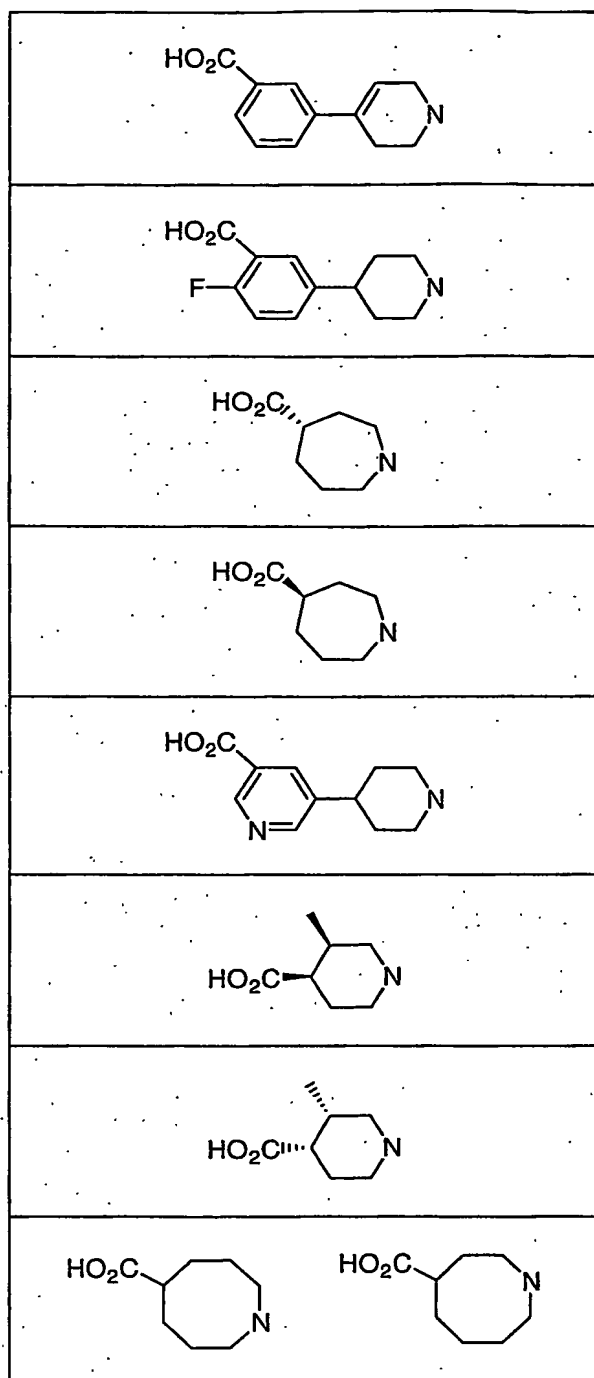
or a pharmaceutically acceptable salt or individual diastereomer thereof.

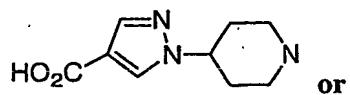
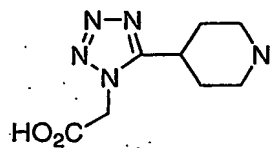
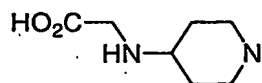
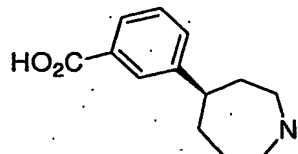
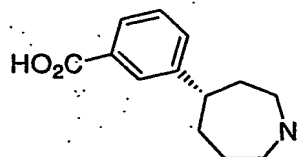
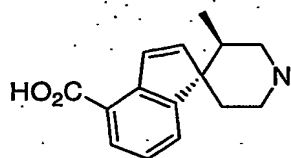
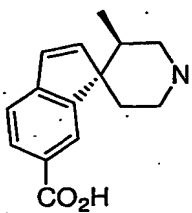
17. A compound represented by

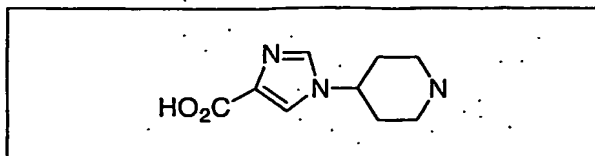


wherein amine is

<chem>OC(=O)C1CCNCC1</chem>
<chem>OC(=O)C1CCNCC1</chem>
<chem>OC(=O)CC1CCNCC1</chem>
<chem>OC(=O)CC1CCNCC1</chem>
<chem>OC(=O)C1CCNCC1</chem>
<chem>OC(=O)CC1CCNCC1</chem>
<chem>OC(=O)CC1CCNCC1</chem>

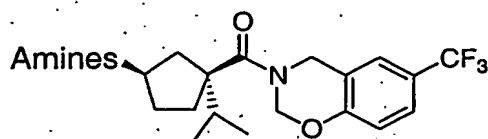




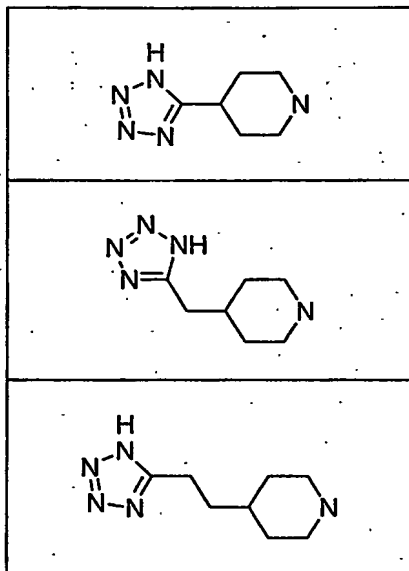


or a pharmaceutically acceptable salt or individual diastereomer thereof.

18. A compound represented by

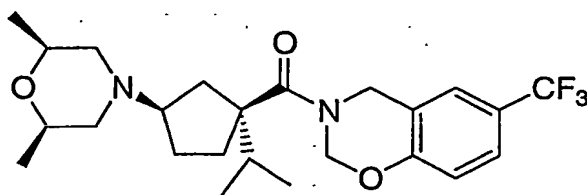


5 wherein amine is



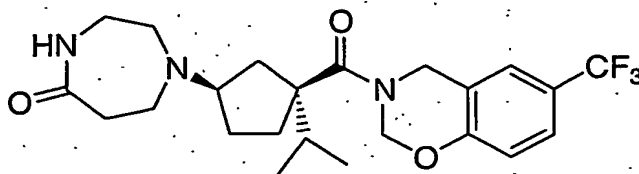
or a pharmaceutically acceptable salt or individual diastereomer thereof.

19. A compound represented by



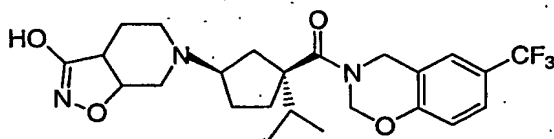
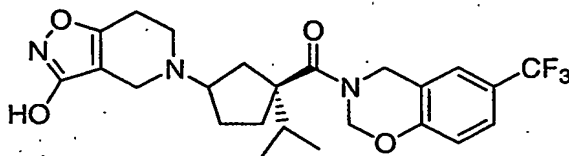
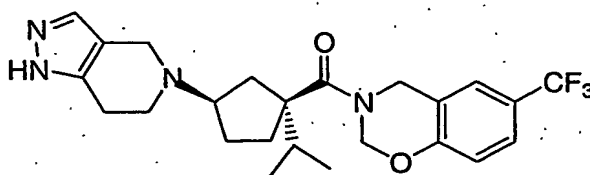
10 or a pharmaceutically acceptable salt or individual diastereomer thereof.

20. A compound represented by



or a pharmaceutically acceptable salt or individual diastereomer thereof.

21. A compound represented by



or a pharmaceutically acceptable salt or individual diastereomer thereof.

22. A pharmaceutical composition which comprises an inert carrier and a compound of Claim 1.

23. A method for modulation of chemokine receptor activity in a mammal which comprises the administration of an effective amount of the compound of Claim 1.

24. A method for treating, ameliorating, controlling or reducing the risk of an inflammatory and immunoregulatory disorder or disease which comprises the administration to a patient of an effective amount of the compound of Claim 1.

5 25. A method for treating, ameliorating, controlling or reducing the risk of rheumatoid arthritis which comprises the administration to a patient of an effective amount of the compound of Claim 1.